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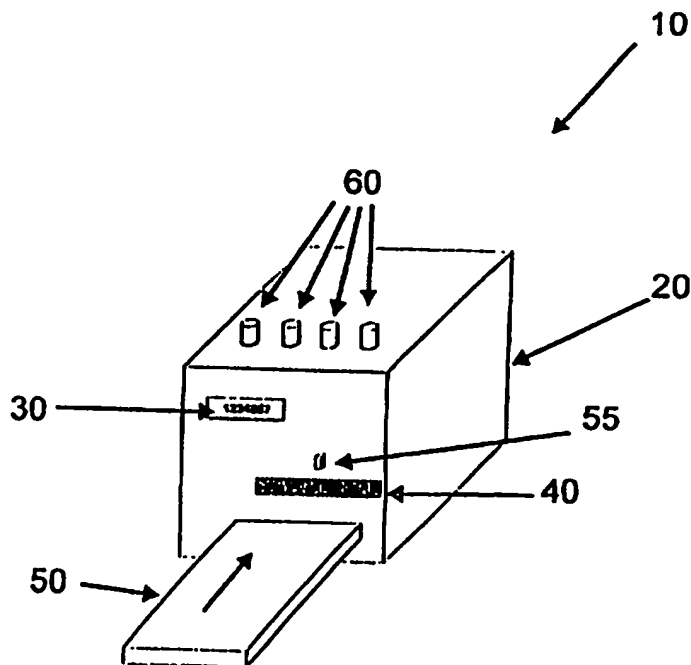
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification⁶ : G07F 7/00, 7/02, 15/00</p>	<p>A1</p>	<p>(11) International Publication Number: WO 97/10575 (43) International Publication Date: 20 March 1997 (20.03.97)</p>
<p>(21) International Application Number: PCT/BR96/00C35 (22) International Filing Date: 16 August 1996 (16.08.96) (30) Priority Data: PI 9504661 14 September 1995 (14.09.95) BR (71)(72) Applicants and Inventors: MATHIEU, Francisco [BR/BR]; Rua Joaquim de Moraes Filho, 375, Bairro Independência, Taubaté, SP (BR). ANTUNES ARAPUÁ, Sergio, Francisco [BR/BR]; Apartamento 104, Rua Euvinho de Moraes, 895, V.S. José, Taubaté, SP (BR). (74) Agent: BRAXIL ASSESSORIA EMPRESARIAL S/C LTDA; Rua Arnaldo Ricardo Monteiro, 146 Jd. Renata, 12245-110-São José dos Campos, SP (BR).</p>		<p>(81) Designated States: AU, CA, CN, JP, MX, PL, RU, SG, US, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM). Published <i>With international search report.</i></p>

(54) Title: **PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE**

(57) Abstract

The present invention is a device that permits usage of a magnetic mean, preferably a magnetic card, purchased from a utility such as electricity. The value paid by the magnetic mean corresponds to a certain amount of rated utility, controlled by the mentioned device, until the amount is consumed, when interruption takes place automatically.



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"PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE".

The present invention refers to a magnetic device used to control rated utility supply, such as
5- electricity, water, gas, etc; it refers more specifically to a controller device capable of reading a magnetic mean, which permits usage of a prepaid amount of rated utilities.

The following text mentions only electricity as an example, but it is understood that the invention applies
10- to correlated cases such as water, gas, telephone, etc.

The electricity supplied by the country's utilities, such as CESP, CPFL, Eletropaulo, among others, performs consumption control by reading meters installed where consumers are. Such meter reading is performed by the
15- utility's employees, who physically go to the buildings, read the meter and take note of the amount of electricity already consumed, and then later, issue a bill so that what has been consumed is paid for.

This system presents some serious
20- inconveniences, such as:

- rating concerns electricity already consumed, subject to not being paid by the consumer that has already used the utility;
- the meter reading is a delayed task, which demands the
25- employee's physical dislocation to the meter, which demands a great number of employees to cover large areas;
- the rating is subject to many human errors, which can happen during meter reading, during the employee's annotation and during transcription to the bill;
- 30- - the bill must be printed and sent to the consumer's address, subject to deviation, strikes, etc.;

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- the consumer must pay such bills, going personally to a bank authorized to receive such bill, or authorizing automatic debt from an account that may not have enough
5- funds.

In view of these inconveniences and aiming to implement a dynamic system more adequate to our present life, a simple and versatile device has been developed that offers advantages for electricity utilities and for
10- consumers.

It is a device for electricity rating characterized by using a magnetic mean that permits use of a predetermined amount of electricity.

Preferably, the magnetic mean that permits the
15- use of a predetermined amount of electricity is a magnetic card, similar to a credit card. Other possible alternatives are disk, magnetic tape, or any other known technical means that permit electric and/or magnetic signal reading with this intention.

20- To simplify, any mention related to the magnetic card reported below denotes equally any other equivalent means.

The present invention's operation is as follows:
a rating device is installed where electricity is consumed
25- as described here. The user purchases a prerecorded magnetic card at the utility which, read by the rating device, permits the use of a certain amount of kilowatts/hour. Reaching such value, optionally, the invented device automatically interrupts electricity supply.

30- The great advantages are clearly observed by using the invented device, among them:

- periodic readings are eliminated at the current meters, economizing public taxes, unnecessary payroll, expenditures with bill postage and contracts with banks;
- 35- - the utility will receive in advance for electricity supply;

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- in case of temporary or provisory connections, such as circus, fairs, exhibitions, etc., payment problems will be avoided;
- 5- - the consumer will not have to face lines or other disappointments to enjoy the benefits of the service;
- the system is easily automatized to permit, for example, connection to the telephone system to transmit data or consumption;
- 10- - the device can be installed inside the building, avoiding ravaging;
- even though the invented device is totally unpublished, its components are easily found on the market, periting cheap utilization.

15- The following schematic figure illustrates the present invention in more details, using electricity as an example of a rated utility, intentionally without dimensions or determined proportions, without imposing any restriction to other equivalent accomplishments. It is understood that there are many other possible alternatives, 20- with different shapes, but with similar functions and results, therefore included in the invention's purpose, as claimed later.

25- Figure 1 annexed to this report shows a prepaid electricity supply device 10, composed of a cabinet 20 that consists of a display 30, a magnetic card reader 40 type 50, and terminals 60 for load line connection.

Optionally, the invented device 10 can comprise a lock mean 55 for the magnetic card.

30- Cabinet 20 has within it a managing electronic circuit (not illustrated) that registers the amount of electricity correspondent to the prepaid value by the magnetic card and read by reader 40, and according to usage, it deducts the used value.

35- Display 30 shows the decrease of the remianing ammount during use. When the prepaid ammount of electricity is totally consumed, the managing electronic circuit,

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optionally, interrupts the electricity supply to the consumer's installation.

5- A very illustrative example of usage of the
invented device is a beach house. Its owner purchases a
magnetic card from the local utility, and when arriving,
inserts the card in the device. During the stay, there is
normal electricity supply. At the end of the stay, the
magnetic card is taken out, and supply is interrupted.
Consume reading, bill issuing or bank lines are not
10- necessary.

As mentioned before, it is clear that the
invented device is adequate for other utilities, such as
water, gas, telephone, etc.

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CLAIMS

1. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE" characterized for using a magnetic mean that permits usage of a prefixed amount of specific supply.
- 5- 2. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE" according to claim 1, characterized by the fact that the mentioned magnetic mean be chosen within the group composed of magnetic card, disk and magnetic tape.
3. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE"
- 10- according to claim 1, characterized by the fact that the mentioned magnetic mean be preferably a magnetic card (50).
5. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE" according to claim 3 characterized by the fact of comprising a lock mean (55) for the mentioned magnetic card
- 15- (50).
6. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE" according to claim 1 characterized by the fact of being equipped with a magnetic card reader (40) and/or display (30) of the utility's amount supplied.
- 20- 7. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE" according to claim 1 characterized by the fact that the mentioned utility be electricity.
8. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE" according to claim 7 characterized by the fact that the
- 25- mentioned device being equipped with terminals (60) for load line connection.
9. "PREPAID RATED UTILITY SUPPLY CONTROLLER DEVICE" according to claim 1 characterized by the fact that the mentioned utility be water, gas or telephone.

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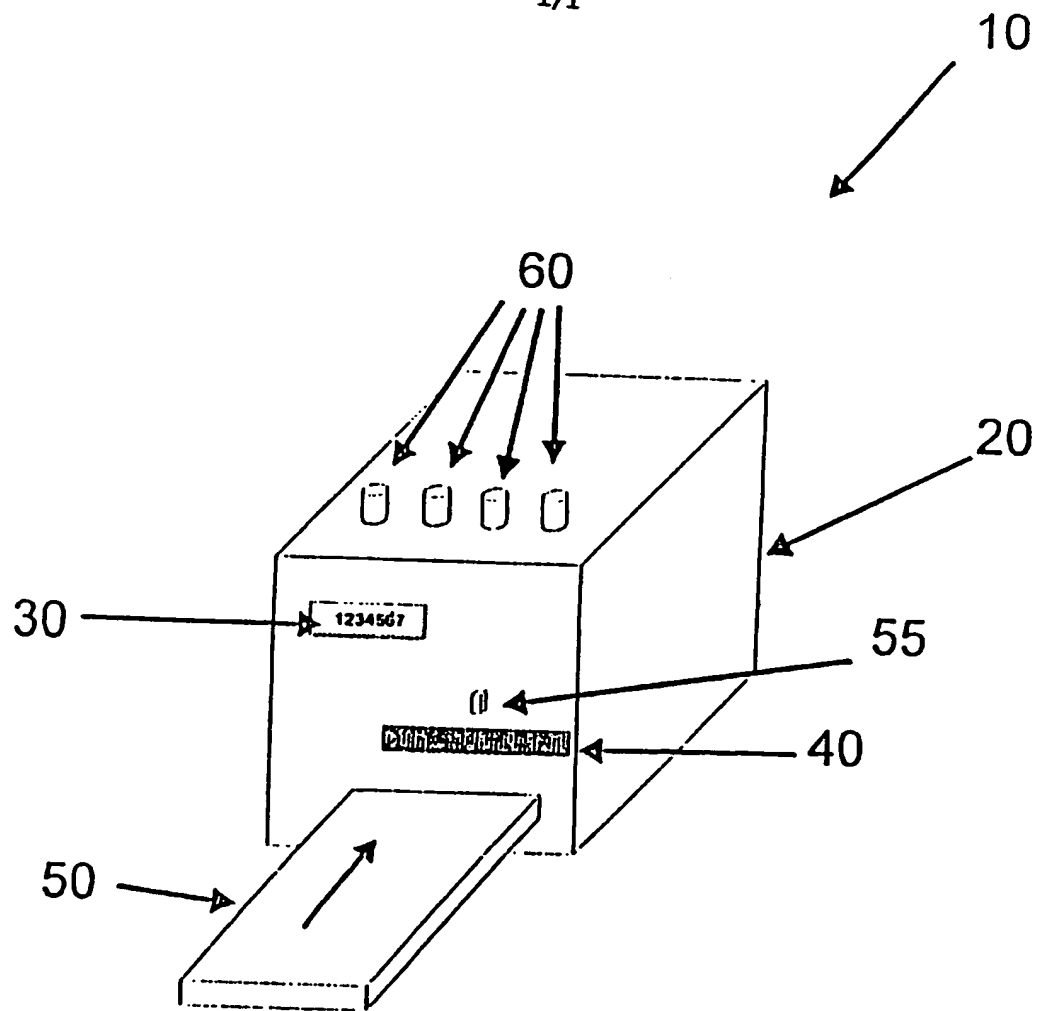


figure 1

INTERNATIONAL SEARCH REPORT

Inter national Application No

PCT/BR 96/00035

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G07F7/00 G07F7/02 G07F15/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 576 276 A (SCHLUMBERGER IND LTD) 29 December 1993 see the whole document ---	1-3,5,6,9
X	US 5 146 067 A (SLOAN JOSEPH W ET AL) 8 September 1992 see abstract; claims 1-7; figures 1-3,5-8 see column 1 - column 2 ---	1-3,5-9
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X	GB 2 236 422 A (GEN ELECTRIC CO PLC) 3 April 1991 see the whole document ---	1-3,6,7,9
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

11 December 1996

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

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International Application No

PCT/BR 96/00035

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